

THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY.

[EIGHTH SERIES.]

No. 66. JUNE 1913.

LXII.—*Descriptions of new Species of Pyralidæ of the Subfamily Pyraustinæ.* By Sir GEORGE F. HAMPSON, Bart., F.Z.S., &c.

[Continued from p. 342.]

Genus PASCHIODES, nov.

Proboscis fully developed ; palpi rostriform, downcurved, extending about twice the length of head, the third joint hidden in hair ; maxillary palpi filiform ; frons flat and oblique ; antennæ of male slightly annulate and nearly simple ; legs and tibial spurs rather long. Fore wing rather elongate triangular ; veins 3 and 5 from near angle of cell ; 6 from well below angle ; 7 from angle, straight and well separated from 8, 9 which are stalked ; 10, 11 from cell. Hind wing with vein 3 from angle of cell ; 4, 5 moderately stalked ; 6, 7 from upper angle, 8 anastomosing with 7 to two-thirds of wing.

Paschiodes mesoleucalis, sp. n.

Head, thorax, and abdomen white, the head and base of tegulæ tinged with brown ; palpi blackish, white at base ; tarsi ringed with fuscous. Fore wing white tinged with pale reddish brown, especially on basal half of costal area and postmedial area, the medial area whiter ; slight blackish subbasal streaks below costa and in cell, followed by some blackish irroration ; the first line almost medial, black, erect, angled outwards on median nervure and vein 1 ; blackish bars in end of cell and on discocellulars, expanding

into slight streaks at upper and lower extremities; post-medial line black, forming a spot on costa, irregularly waved, incurved at discal fold, below vein 3 bent upwards to lower angle of cell, retracted to origin of vein 2 and at vein 1 angled inwards almost to the first line; subterminal line indistinct, blackish, diffused, angled outwards below costa and inwards in discal and submedian folds; a terminal series of small black spots; cilia with series of slight fuscous striæ at middle. Hind wing white with faint diffused fuscous subterminal band except towards tornus; a black terminal line.

Hab. TRANSVAAL (*Cholmley*), 2 ♂, 1 ♀, Johannesburg (*Ross*), 1 ♀; C. COLONY, Transkei (*Miss F. Barrett*), 1 ♀ type. *Exp.* 24 mm.

(3) *Parbattia æthiopicalis*, sp. n.

♀. Head and tegulæ ochreous mixed with black; palpi whitish at base; thorax white and black mixed; abdomen whitish slightly tinged with fuscous and with lateral series of blackish spots. Fore wing silvery white slightly tinged with ochreous and thickly irrorated with black; a small wedge-shaped black mark below base of cell; a subbasal whitish mark from cell to inner margin; the first line nearly medial, black defined by white on inner side, angled outwards on median nervure and vein 1; a diffused black spot in end of cell and discoidal bar; postmedial line black slightly defined by whitish on outer side, somewhat dentate, strongly incurved at discal fold, at vein 2 retracted to cell and obsolescent, then incurved; subterminal line whitish defined on inner side by fuscous suffusion, angled inwards at discal fold, excurved at middle and in submedian interspace incurved to below postmedial line; a terminal series of blackish spots; cilia white with a diffused fuscous line through them. Hind wing silvery white, the terminal area very faintly tinged with brown; a dark terminal line; the underside with faint discoidal spot and curved postmedial line from costa to vein 2.

Hab. BR. E. AFRICA, Uganda Ry., Mile 478 (*Betton*), 1 ♀ type. *Exp.* 40 mm.

(1 a) *Nomophila albisignalis*, sp. n.

♀. Head, thorax, and abdomen red-brown; tibiæ and tarsi with slight blackish rings. Fore wing red-brown slightly irrorated with black; a slight blackish subbasal line angled outwards in cell; autemedial line almost obsolete

except a blackish bar from vein 1 to inner margin; an oblique white bar defined on each side by black lines across upper part of extremity of cell expanding into an obscure spot with minute white spots at sides in lower part of cell; postmedial line very indistinct, blackish, angled outwards below costa, below vein 5 incurved to lower edge of spot in cell, then almost obsolete; subterminal line whitish slightly defined by blackish on inner side, angled outwards at vein 7, incurved at discal fold, then excurved, strongly incurved and almost obsolete below vein 3; a terminal series of black points. Hind wing pale red-brown; slight diffused fuscous spots at angles of cell; an oblique postmedial black striga on vein 2; postmedial line indistinct, fuscous, sinuous, from costa to termen at vein 1; cilia pale rufous with fuscous spot at vein 2 and blackish line through them and blackish tips towards tornus; the underside irrorated with black.

Hab. BR. E. AFRICA, Udumu (*Betton*), 1 ♀ type. *Exp.* 40 mm.

(3) *Nomophila squalidalis*, sp. n.

♀. Head and thorax dull brown; palpi white at base; abdomen greyish brown; pectus, legs, and ventral surface of abdomen whitish. Fore wing dull yellowish brown sparsely irrorated with black; traces of an obliquely curved antemedial line formed by a few black scales; a whitish discoidal spot defined by some black scales on inner side and by an obscure fuscous bar on outer; a postmedial black point on costa; traces of a postmedial line excurved between veins 5 and 2, then retracted to near origin of vein 2 and erect to inner margin; the area between upper angle of cell and apex irrorated with black and white scales forming very obscure streaks; two black points on costa towards apex and a terminal series; cilia brownish white with a dark line near base. Hind wing semihyaline brownish white, the terminal area tinged with brown towards apex; a slight black terminal line; cilia brownish white.

Hab. ARGENTINA, Gran Chaco, Florenzia (*Wagner*), 1 ♀ type. *Exp.* 20 mm.

(1 a) *Pachyzancla albicilia*, sp. n.

Fore femora of male fringed above with long hair towards base and with curled tuft of hair towards extremity.

♂. Head, thorax, and abdomen glossy brown; palpi at base, pectus, legs, and ventral surface of abdomen white, the fore tibiae with brown patch at extremity. Fore wing

glossy brown; traces of an oblique antemedial line; post-medial line indistinct, dark, excurved from costa to vein 2 where it is retracted, then erect; cilia paler at tips. Hind wing glossy brown; a slight dark terminal line; cilia pure white at tips; the underside whitish tinged with brown.

Hab. Peru, Pozuzo, 1 ♂ type. *Exp.* 26 mm.

(12 a) *Pachyzancla aprepi*, sp. n.

Head and thorax brown; palpi at base, pectus, and legs white, the fore tibiae with brown band at extremity; abdomen white dorsally tinged with brown and with sub-dorsal blackish points on second segment. Fore wing pale brown; a somewhat oblique dark antemedial line defined on inner side by whitish; a blackish point in middle of cell and discoidal bar; postmedial line dark defined on outer side by whitish, incurved to vein 5, then bent outwards to vein 2, then retracted to below end of cell and excurved above inner margin. Hind wing pale brown; a dark discoidal striga; postmedial line dark defined on outer side by whitish, bent outwards between veins 5 and 2, then retracted to below end of cell and oblique to inner margin; a dark terminal line; the underside whitish.

Hab. GAZALAND, Chirinda Forest (*Marshall*), 1 ♂, 2 ♀; MAURITIUS, 1 ♂ type. *Exp.* 28 mm.

(12 c) *Pachyzancla albivitta*, sp. n.

♂. Head, thorax, and abdomen grey-brown; palpi black, white below; pectus, legs, and ventral surface of abdomen white, the fore tibiae with fuscous band at extremity, the genital tufts rufous. Fore wing pale grey-brown; an indistinct sinuous antemedial line with diffused white fascia from it to postmedial line below the cell; a small blackish discoidal spot; postmedial line dark, at vein 3 bent inwards to vein 2 below end of cell, then erect; a fine dark line near base of cilia. Hind wing whitish suffused with brown; postmedial line indistinct, slightly bent outwards between veins 5 and 2, then retracted to below end of cell; cilia whitish with a fine brown line near base; the underside white.

Hab. PERU, La Oroya (*Ockenden*), 1 ♂ type. *Exp.* 32 mm.

(17 a) *Pachyzancla brunnealis*, sp. n.

Pale red-brown; palpi and frons fuscous, the former white at base. Fore wing with the costal area tinged with

fuscous to the postmedial line; a black antemedial line bent inwards to costa; a point in middle of cell and discoidal lunule; the postmedial line bent outwards and minutely dentate between veins 5 and 2, then retracted to below end of cell and slightly excurved again; the terminal area broadly fuscous brown. Hind wing with black discoidal point; the postmedial line bent outwards and minutely dentate between veins 5 and 2; the terminal area tinged with fuscous, broadly at costa, narrowing to tornus.

Hab. GOLD COAST, Accra (*Carter*), 1 ♀; S. NIGERIA, Sapele (*Sampson*), 1 ♂ type, Warri (*Roth*), 1 ♀, 1 ♀; COMORO IS., Mayotta (*Meade-Waldo*), 1 ♂. *Exp.* 20 mm.

(18 c) *Pachyzancla pallidalis*, sp. n.

Whitish slightly tinged with ochreous; head, tegulæ, and patagia and prothorax in front fuscous brown; abdomen with subdorsal black points at base of third segment, the extremity dorsally tinged with brown. Fore wing with the costal and terminal areas broadly brown; a curved brown antemedial line; a spot in middle of cell and discoidal lunule; the postmedial line bent outwards and sometimes minutely dentate between veins 5 and 2, then retracted to below end of cell and slightly excurved again. Hind wing with discoidal point; the postmedial line strongly bent outwards and minutely dentate between veins 5 and 2; a terminal brown band wide at costa and narrowing to tornus.

The African specimens have rather less brown on prothorax and costal area of fore wing.

Hab. GOLD COAST, Kumasi (*Whiteside*), 1 ♀; S. NIGERIA, Lagos (*Dudgeon*), 1 ♀, Old Calabar (*Sampson*), 1 ♀, Sapele (*Sampson*), 1 ♀, Warri (*Roth*), 1 ♂; CAMEROONS (*Sjostedt*), 1 ♀; UGANDA, Kampala (*Ansorge*), 1 ♂; NATAL (*Gooch*), 2 ♀; AMBOINA (*Doherty*), 1 ♂; BATCHIAN (*Doherty*), 1 ♀; TENIMBER (*Doherty*), 1 ♂ type; WOODLARK I. (*Meek*), 1 ♀; LOUISIADES, Fergusson I. (*Meek*), 2 ♀, St. Aignan (*Meek*), 1 ♀. *Exp.* 18-24 mm.

(18 d) **Pachyzancla geminalis*, sp. n.

Reddish ochreous; palpi, frons, and shoulders brown, the first white below; pectus, legs, and ventral surface of abdomen white. Fore wing with the costal area tinged with fuscous to beyond middle; an indistinct blackish antemedial line from cell to inner margin; a prominent black point in cell and two on discocellulars; the postmedial

line minutely waved, indistinct, curved from costa to vein 3, then retracted to below angle of cell and oblique to inner margin; termen tinged with fuscous. Hind wing with deep black discoidal point; the postmedial line indistinct, bent outwards and minutely waved between veins 5 and 2; the termen suffused with fuscous except towards tornus, and with a fine black terminal line.

Hab. QUEENSLAND (*Mackay*). *Exp.* 26 mm. Type in Coll. Rothschild.

(18 e) *Pachyzancla atritermina*, sp. n.

Head, thorax, and abdomen ochreous with a slight rufous tinge, the vertex of head whiter; palpi black above, white below; third segment of abdomen with small subdorsal black spots. Fore wing ochreous slightly tinged with rufous; a black point on inner margin near base; antemedial line blackish with black bar from costa, oblique to submedian fold; a small black spot in middle of cell and larger discoidal spot; postmedial line blackish with small black spot at costa, bent outwards and slightly waved between veins 4 and 2, then retracted to below end of cell; a distinct black terminal line. Hind wing ochreous faintly tinged with rufous; a black discoidal spot; postmedial line blackish, slightly incurved at discal fold, bent outwards between veins 4 and 2, then retracted to below end of cell; a distinct black terminal line.

Hab. BR. E. AFRICA, Taveta (*Rogers*), 2 ♀ type; BOMBAY, 1 ♂. *Exp.* 20 mm.

(20 d) *Pachyzancla simillima*, sp. n.

Head and thorax greyish ochreous tinged with fuscous brown; palpi fuscous above, white below; pectus and legs pale ochreous; abdomen greyish ochreous with subdorsal fuscous points on third segment, the ventral surface white. Fore wings greyish ochreous tinged with fuscous brown, the terminal area darker, the costal edge fuscous to beyond middle; antemedial line indistinct, fuscous, oblique from costa to submedian fold; a small blackish spot in middle of cell and larger discoidal spot; postmedial line fuscous, incurved from costa to vein 5, bent outwards and minutely waved to vein 2, then retracted to below end of cell and oblique to inner margin. Hind wing greyish ochreous tinged with fuscous brown; a blackish discoidal point; postmedial line fuscous, incurved to discal fold, bent outwards and minutely waved between veins 5 and 2, then

retracted to below end of cell and oblique to above tornus ; a faint subterminal shade ; cilia with a fine pale line at base.

Hab. D'ENTRECASTEAUX Is., Fergusson I. (*Meek*), 2 ♂, 1 ♀ type. *Exp.* 22 mm.

Extremely like *P. licarsisalis* except in structure.

(26) *Pachyzancla xanthomela*, sp. n.

Filodes hesusalis, Druce, Biol. Centr.-Am., Het. ii. p. 263 (nec Wlk.).

Head and thorax orange ; palpi white at base ; pectus and legs brown, the tarsi banded with white ; abdomen with the three basal segments orange, the other segments black with orange segmental lines, the ventral surface wholly black. Fore wing orange, the terminal area from just beyond the cell black with a purplish tinge, its inner edge angled outwards beyond lower angle of cell ; cilia black chequered with whitish at tips. Hind wing orange, the terminal half black with a purplish tinge, its inner edge slightly angled at submedian fold ; cilia black mixed with whitish at tips.

Hab. GUATEMALA, San Gerónimo (*Champion*), 2 ♂, 1 ♀, Dueñas (*Champion*), 2 ♂, Purula (*Champion*), 1 ♂ type ; COSTA RICA, Candalaria Mts. (*Underwood*), 1 ♀, Godman-Salvin Coll. ; PANAMA. *Exp.* 18-20 mm.

(27) *Pachyzancla aurea*, sp. n.

Lygropia unicoloralis, Druce, Biol. Centr.-Am., Het. ii. p. 254 (part.), nec Guen.

Orange ; palpi white at base ; legs whitish. Fore wing with faint oblique antemedial line ; a slight discoidal striga ; postmedial line faint, excurved from discal fold to vein 3, then bent inwards to below end of cell and erect to inner margin. Hind wing with faint oblique line from beyond lower angle of cell to near termen at submedian fold.

Hab. MEXICO, Presidio (*Forrer*), 1 ♂ type ; GUATEMALA, S. Gerónimo (*Champion*), 1 ♀, Godman-Salvin Coll. *Exp.*, ♂ 18, ♀ 20 mm.

(28) *Pachyzancla holochrysis*, sp. n.

Lygropia unicoloralis, Druce, Biol. Centr.-Am., Het. ii. p. 254 (part.), nec Guen.

♀. Orange : palpi white at base ; fore femora above, the tibiæ and tarsi blackish. Wings without markings, the hind wing slightly paler.

Hab. MEXICO, Guerrero, Amula (*H. H. Smith*), 1 ♀ type, Godman-Salvin Coll. *Exp.* 22 mm.

(29) *Pachyzancla nigripalpis*, sp. n.

Lygropia unicoloralis, Druce, Biol. Centr.-Am., Het. ii. p. 254 (part.), nec Guen.

♂. Orange; palpi black; legs black; abdomen with the ventral surface black except at extremity. Wings without markings, the hind wing somewhat paler and semihyaline.

♀. Deeper orange, the fore legs only black, the ventral surface of abdomen white.

Hab. MEXICO, Milpas (*Forrer*), 1 ♂ type; GUATEMALA, Zapote (*Champion*), 1 ♀, Godman-Salvin Coll. *Exp.*, ♂ 28, ♀ 26 mm.

(30) *Pachyzancla straminea*, sp. n.

Lygropia unicoloralis, Druce, Biol. Centr.-Am., Het. ii. p. 254 (part.), nec Guen.

♂. Orange-yellow; palpi with the third joint black; fore femora above and the fore and mid tibiae and tarsi black. Wings without markings; fore wing with the costal edge black towards base; hind wing somewhat paler and slightly semihyaline.

Hab. MEXICO, Guerrero, Omilteme (*H. H. Smith*), 1 ♂ type, Godman-Salvin Coll. *Exp.* 32 mm.

(3) *Rhectosomia perelongata*, sp. n.

♂. Head and thorax rufous; frons and tarsi whitish; abdomen dark reddish brown; the two basal segments ochreous and rufous. Fore wing very narrow and elongate; rufous mixed with greyish; a very indistinct blackish ante-medial line, excurved in cell, then oblique, a triangular greyish mark beyond it in cell; a greyish bar across end of cell with oblique band from it to inner margin, some black irroration before it; postmedial line slight, dark, bent outwards below costa, acutely dentate to vein 6, sharply angled inwards in discal fold, bent outwards between vein 5 and submedian fold to near termen, then bent inwards, some yellow streaks beyond it below costa and above and below vein 5, and three spots beyond the excurved portion; a fine whitish terminal line; cilia blackish with whitish line at middle. Hind wing semihyaline whitish, the terminal area suffused with red-brown; a wavy fuscous postmedial line; a minutely wavy fuscous subterminal line, sharply angled inwards at discal fold, bent outwards from vein 5 to submedian fold, then incurved; cilia whitish at base, dark at tips.

Hab. PERU, Oconeque (*Ockenden*), 1 ♂ type. *Exp.* 32 mm.

(4) *Rhectosomia tumidicosta*, sp. n.

♂. Head and thorax red-brown mixed with grey-white and some black; abdomen brownish grey with black segmental bands. Fore wing with the costa highly arched towards apex, brownish grey suffused in parts with red-brown and irrorated with black; an indistinct black ante-medial line defined on outer side by grey, bent outwards below costa, then waved, and bent inwards above inner margin to near base; an oblique pale mark in middle of cell and a narrow ochreous discoidal lunule defined at sides by black; medial part of costa ochreous with a red-brown spot above end of cell; a black line defined on inner side by ochreous and excurved from lower angle of cell to submedian fold, then bent inwards and defined on outer side by ochreous to inner margin; postmedial line defined on outer side by ochreous and with a slight black streak before it above vein 6, red-brown and oblique towards costa, then blackish, inwardly oblique and crenulate; some red-brown suffusion on terminal area below apex and at submedian fold; a terminal series of black points. Hind wing creamy white, some brown suffusion and dark irroration on termen extending as a streak below vein 2 halfway to the cell; the underside with the costal and inner areas tinged with brown and irrorated with blackish.

Hab. W. COLOMBIA, San Antonio (*Palmer*), 1 ♂ type.
Exp. 38 mm.

(1 a) *Phlyctenodes uniformis*, sp. n.

Hind tibiae of male with the outer spurs minute; fore wing with a large fovea below the cell covered by a fan of scales on underside and a large fovea beyond upper angle of cell.

♂. Head and thorax red-brown; palpi white at base; legs red-brown; pectus and abdomen brownish white. Fore wing uniform red-brown. Hind wing brownish white.

Hab. JAPAN, Sakata (*Leech*), 1 ♂ type. *Exp.* 22 mm.

(5 a) *Phlyctenodes conisphora*, sp. n.

Spilodes helvialis, Druce, Biol. Centr.-Am., Het. ii. p. 267 (part.).

Pachyzancla detritalis, Druce, Biol. Centr.-Am., Het. ii. p. 222 (part.).

Pachyzancla grisealis, Druce, Biol. Centr.-Am., Het. ii. p. 222 (part.).

Head, thorax, and abdomen ochreous tinged with rufous; palpi blackish at sides, white below towards base. Fore wing ochreous more or less irrorated with fuscous; ante-medial line fuscous, arising at subcostal nervure and oblique

to vein 1 ; a black point in middle of cell and slight discoidal lunule ; postmedial line fuscous, oblique to vein 6, then dentate and excurved to vein 3, at vein 2 angled inwards to below end of cell and again angled outwards at submedian fold ; an indistinct dentate fuscous subterminal line ; a fuscous terminal line ; cilia brown with an ochreous line at base. Hind wing pale ochreous ; a slight dark mark at lower angle of cell ; postmedial line fuscous, minutely dentate to submedian fold and obsolescent on inner area ; an indistinct dark dentate subterminal line with brownish suffusion beyond it ; a dark terminal line from apex to submedian fold ; cilia with a brown line near base except towards tornus.

Hab. MEXICO, Tabasco, Teapa (*H. H. Smith*), 1 ♂ ; GUATEMALA, Irazu (*Rogers*), 1 ♂, 1 ♀, Duenas (*Champion*), 2 ♂ type, Calderas (*Champion*), 1 ♂, Godman-Salvin Coll. *Exp.* 22-24 mm.

(8b) *Phlyctænodes microdentalis*, sp. n.

♀. Head and thorax yellowish suffused with rufous ; palpi white at base ; pectus and legs whitish, the fore legs rufous in front ; abdomen yellowish, dorsally tinged with fulvous. Fore wing pale yellow, the costal half tinged with rufous ; traces of a discoidal lunule ; postmedial line pale brownish, very minutely dentate, excurved from costa to vein 4, then oblique. Hind wing pale yellow with traces of a curved postmedial line from costa to vein 4.

Hab. BR. E. AFRICA, Taveta (*Rogers*), 1 ♀ ; C. COLONY, Annshaw (*Miss F. Barrett*), 1 ♀ type. *Exp.* 32 mm.

(16b) *Phlyctænodes bifilalis*, sp. n.

Fore wing with the termen slightly excised below apex and excurved at middle.

Head and thorax bright rufous ; palpi white at base ; pectus and legs white, the fore femora and tibiæ tinged with rufous ; abdomen white dorsally suffused with rufous. Fore wing yellowish suffused with rufous ; the veins streaked with rufous ; a slight oblique rufous subbasal line ; ante-medial line rufous, oblique from costa to median nerve, then inwardly oblique ; a slight discoidal lunule ; postmedial line obliquely excurved from costa to vein 2, then oblique ; an indistinct waved subterminal line ; a terminal series of slight black points ; cilia dark brown. Hind wing yellowish white, the termen tinged with rufous ; a dark brown terminal line from apex to vein 2 ; cilia whitish, with brown

line through them from apex to middle, where there is a brown patch.

Hab. BR. GUIANA, Potaro R. (*Kaye*), 2 ♂ type. *Exp.* 24 mm.

(28 a) *Phlyctænodes nigrirenalis*, sp. n.

♀. Head and thorax greyish tinged with brown; palpi white below; pectus and legs white, the fore legs brownish in front; abdomen white dorsally tinged with brown, leaving slight white segmental lines. Fore wing whitish tinged with brown; an antemedial black spot below cell, with point obliquely placed above it in cell; a black discoidal lunule; postmedial line dentate, bent outwards between veins 6 and 3, then retracted to below angle of cell and oblique to inner margin; the terminal area suffused with blackish, expanding inwards to the postmedial line at vein 6; a terminal series of black points; cilia fuscous. Hind wing whitish tinged with brown especially towards termen; cilia whitish with a dark line near base.

Hab. N. Australia, Baudin I. (*J. J. Walker*), 1 ♀ type. *Exp.* 22 mm.

(29 a) *Phlyctænodes distictalis*, sp. n.

♀. Head and thorax ochreous yellow; palpi rufous, white below; pectus and legs white, the fore tibiæ with fuscous band at extremity; abdomen white, dorsally tinged with yellow except at base. Fore wing ochreous yellow, the costal area slightly tinged with rufous; a black point in middle of cell and another at lower angle; faint traces of a curved postmedial line. Hind wing white tinged with yellow; the underside with indistinct curved dark postmedial line from costa to vein 2 and terminal series of minute points from apex to vein 2.

Hab. BASUTOLAND, Mohalishoek (*Crawshay*), 1 ♀ type. *Exp.* 26 mm.

(37 a) **Phlyctænodes phæopteralis*, sp. n.

♀. Fuscous brown; palpi below, pectus, legs, and ventral surface of abdomen white. Fore wing with slightly oblique black antemedial line, very slightly bent inwards to costa and defined on inner side by yellowish white; black points in middle of cell and on discocellulars, with a quadrate yellowish-white spot between them; the postmedial black line minutely dentate, strongly excurved between veins 5

and 2, then retracted to below end of cell, defined by yellowish white on outer side, expanding into patches towards costa and in the sinus below vein 2. Hind wing with discoidal black point; the postmedial line indistinct, strongly excurved between veins 5 and 2, then oblique to above tornus, and slightly defined by whitish on outer side; a fine pale line at base of cilia, which have their tips whitish between veins 2 and 1.

Hab. ROX I. (*Doherty*). *Exp.* 30 mm. Type in Coll. Rothschild.

(43 b) *Phlyctænodes flavivenalis*, sp. n.

♂. Head, thorax, and abdomen red-brown mixed with yellow; palpi white at base. Fore wing pale olive-brown mixed with red-brown; the veins rather paler, becoming pale yellow on terminal area; a fine black streak in submedian fold to below origin of vein 2; a faint dark subbasal streak below vein 1 and streak above middle of inner margin; the cell pale, with elongate brown orbicular stigma defined by black and discoidal lunule also defined by black; slight wedge-shaped black marks above bases of veins beyond the cell; a narrow yellow band before the fine dark terminal line; cilia pale yellow, with fine dark line near base and slight dark tips. Hind wing fulvous yellow, the veins slightly tinged with brown; a brown discoidal spot; a curved, minutely dentate, postmedial line angled inwards at vein 2; a diffused brown subterminal line and black terminal line; cilia pale, with blackish line at base, the tips tinged with brown; the underside fulvous yellow, the veins tinged with brown, traces of discoidal spot, curved postmedial line, and diffused subterminal line.

Hab. BAGHDAD (*Loftus*), 1 ♂ type. *Exp.* 38 mm.

(43 c) *Phlyctænodes cræsusalis*, sp. n.

Head and thorax yellow tinged with rufous; palpi dark brown, white below; frons dark brown, with lateral white streaks; pectus whitish; legs fuscous streaked with whitish; abdomen yellow. Fore wing yellow suffused with rufous to postmedial line, deepest on costal area; a diffused blackish discoidal spot; postmedial line fuscous, diffused and confluent with a triangular brown patch on apical part of costa, slightly excurved towards costa, then very oblique to middle of inner margin; a fine black terminal line with a rufous tinge on inner side; cilia grey tinged with fuscous. Hind

wing golden yellow, with rather diffused, curved, fuscous postmedial line from costa to submedian fold; some fuscous suffusion at apex; a slight blackish terminal line; cilia fuscous at base, whitish at tips; the underside with the costal area tinged with rufous.

Hab. NATAL, Estcourt (*Hutchinson*), 1 ♀; CAPE COLONY, Transkei (*Miss F. Barrett*), 1 ♂, Kokstad (*Mrs. Pringle*), 1 ♂ type. *Exp.* ♂ 28 mm.

(50 a) *Phlyctænodes pictalis*, sp. n.

♂. Head and thorax pale yellow; tegulæ and patagia with blood-red fascia on outer edge; palpi blackish, white at base; pectus and legs fuscous mixed with whitish; abdomen whitish suffused with fuscous. Fore wing pale sulphur-yellow; the costal area with blood-red fascia to beyond middle, expanding into a patch beyond cell, the costal edge blackish; a slight blood-red streak in cell from middle to extremity, with an elongate black and silvery spot on it at middle of cell and small black and silvery discoidal lunule; a blood-red streak below the cell from before middle to extremity; an oblique incurved black and silvery medial line from below cell to inner margin, defined on each side by blood-red; postmedial line black and silvery, very oblique, from costa near apex to inner margin, with blood-red band on its outer edge, irrorated with black towards apex; a fine black terminal line; cilia blood-red. Hind wing yellowish white tinged with brown; a curved fuscous postmedial line from costa to vein 1, with the area beyond it brown; a fine black terminal line; cilia whitish tinged with red. Underside of fore wing with the costal half suffused with fuscous brown, a diffused fuscous-brown subterminal band.

Hab. C. COLONY, Rosmead (*Juby*), 1 ♂ type. *Exp.* 22 mm.

(50 b) *Phlyctænodes euprepialis*, sp. n.

Head and thorax sulphur-yellow; palpi at tips, a bar across frons, and antennæ black; thorax with blackish dorsal fascia; pectus blackish; fore legs white in front, black behind; mid and hind legs fuscous at base, the tibiæ and tarsi whitish; abdomen white slightly tinged with rufous and with black segmental bands, the ventral surface blackish. Fore wing sulphur-yellow; a red costal fascia to beyond middle; antemedial line black and silvery, from submedian fold to inner margin dentate; black and silvery points at middle of cell and on discocellulars; postmedial line black

and silvery, very oblique, from just below costa towards apex to inner margin, with a red band on its outer edge irrorated with black scales towards apex; a fine black terminal line; cilia pale red. Hind wing fuscous, whitish at base; cilia whitish tinged with pale red. Underside of both wings fuscous.

Hab. MASHONALAND, Salisbury (*Marshall*), 1 ♀ type; TRANSVAAL, Piet Retief (*Crawshay*), 1 ♂, White R. (*Cooke*), 1 ♀, Bultfontein (*Janse*), 2 ♂, 3 ♀. *Exp.* 24 mm.

(55 a) *Phlyctanodes chrysalis*, sp. n.

♂. Head, thorax, and abdomen pale yellow; palpi black at tips; fore coxæ in front, and the femora, tibiæ, and tarsi black. Fore wing golden yellow; a brownish costal fascia to beyond middle irrorated with white scales; a slight whitish and brown medial line from cell to inner margin; a brownish band irrorated with white scales from the costal fascia round end of cell to near origin of vein 2; a brownish terminal band suffused with white and with dark line on its inner edge. Hind wing fuscous brown slightly suffused with white, the costal area whitish to near apex; cilia whitish. Underside of both wings fuscous brown.

Hab. S. AUSTRALIA (*Dohrn*), 1 ♂ type. *Exp.* 20 mm.

(3 a) *Diasemia trigonalis*, sp. n.

Head, thorax, and abdomen black-brown mixed with whitish; palpi white in front towards base; head with white streaks at sides; abdomen with dorsal whitish segmental lines. Fore wing ochreous white suffused with red-brown, the costal area dark brown mixed with whitish; an oblique triangular black-brown antemedial patch from above vein 1 to inner margin, with a whitish band between it and a similar medial patch extending to median nervure; a rather triangular whitish discoidal spot defined at sides by a few black scales; a triangular black-brown postmedial patch from vein 5 to inner margin, with a rather Y-shaped band between it and the medial patch; a whitish postmedial band, expanding on inner side at discal fold and defined on each side by some black scales, then oblique and defining the outer edge of the postmedial patch, met at inner margin by a diffused whitish subterminal band arising from apex; the terminal area dark, with a series of obscure triangular black spots; cilia blackish, with a fine white line at base. Hind wing black-brown; the costal area whitish to beyond middle,

with a whitish discoidal spot conjoined to it; an irregular oblique whitish medial band; postmedial line white, oblique to discal fold, then bent outwards to termen at vein 2; cilia whitish, with a blackish line near base.

Hab. NATAL, Weenen, 1 ♂ type, Durban (*Leigh*), 1 ♀; ORANGE R. COLONY, Bloemfontein (*Eckersley*), 1 ♂; BASUTOLAND, Moletsani (*Crawshay*), 1 ♂. *Exp.* 18 mm.

(6 a) *Diasemia monostigma*, sp. n.

♂. Head, thorax, and abdomen grey suffused with red-brown. Fore wing grey suffused with red-brown; the costal edge black to middle and with three black points on post-medial area; an indistinct black antemedial line from cell to inner margin, defined on inner side by a faint greyish band; a slight blackish line from lower angle of cell to inner margin; postmedial line blackish, defined on outer side by grey, oblique to discal fold, where it is slightly bent outwards, then again oblique to inner margin, an oblique wedge-shaped black patch before it between veins 5 and 2 and slight blackish marks in the interspaces beyond the grey band; a terminal series of small black spots; cilia with a fine pale line at base. Hind wing grey-brown; an indistinct dark postmedial line defined on outer side by grey, oblique, bent outwards between veins 5 and 2; the termen blackish on apical half, with blackish spots on inner half.

♀. Fore wing with the postmedial line angled outwards in submedian fold to near tornus, then retracted to below angle of cell and oblique to middle of inner margin, the black patch before it triangular.

Hab. TRANSVAAL, Lemana (*Janse*), 1 ♀; NATAL, Karkloof (*Marshall*), 2 ♀, Estcourt (*Hutchinson*), 1 ♀, Pietermaritzburg (*Bowker*), 1 ♀, Durban (*Leigh*), 1 ♂ type; CAPE COLONY, Anushaw (*Miss F. Barrett*), 2 ♂, Zuurburg (*Baird*), 1 ♂, 2 ♀. *Exp.*, ♂ 24, ♀ 20 mm.

(1 b) *Liopasia rufalis*, sp. n.

♀. Head and thorax rufous; palpi white at base; maxillary palpi white; slight white streaks above the eyes; pectus and legs white, the fore tibiæ tinged with rufous; abdomen pale rufous, with slightly darker subdorsal rufous marks on two basal segments and dorsal and subdorsal marks on the other segments, the ventral surface white. Fore wing rufous irrorated with blackish; a very indistinct blackish antemedial line, oblique from costa to submedian fold; traces

of dark annuli at middle and end of cell and of an oblique shade from lower angle of cell to inner margin; a very indistinct dark line, oblique from costa to vein 5 beyond the cell, then inwardly oblique; a curved postmedial series of black points in the interspaces; a terminal series of obscure spots. Hind wing semihyaline white, the terminal area and cilia suffused with rufous from apex to submedian fold; a slight dark postmedial line from costa to vein 5; the underside with the costal area white.

Hab. TRINIDAD, Cuparo (*Kaye*), 2 ♀ type; BR. GUIANA (*Rodway*), 1 ♀. *Exp.* 44 mm.

(1 a) *Anarmodia obliqualis*, sp. n.

♂. Head and thorax fiery red; palpi whitish at base; fore tarsi and mid and hind tibiae and tarsi pale; abdomen red suffused with brown. Fore wing fiery red, with darker streaks on the veins, the costal area deep red, brownish towards base; a very oblique dark brown antemedial line; a dark point in middle of cell; a very oblique dark discoidal bar confluent with the stronger streak on vein 3; postmedial line very oblique from costa to vein 5, excurved and less distinct to vein 3, then obsolete; a deep red terminal line. Hind wing yellow, the terminal area tinged with red from vein 5 to tornus, the veins of terminal area slightly streaked with red; a deep red terminal line; cilia reddish, with a slight dark line near base; the underside yellow suffused with red, a dark spot at upper angle of cell and point at lower angle.

Hab. PERU, Huancabamba, 1 ♂ type. *Exp.* 40 mm.

(8 a) *Anarmodia croceiproctis*, sp. n.

♂. Head, thorax, and abdomen cupreous brown; palpi white at base; antennæ with the basal joint whitish; some white below base of wings; coxæ and tibial spurs white; abdomen with the anal tuft orange, the ventral surface white irrorated with brown. Fore wing cupreous brown; a slight dark discoidal spot; postmedial line indistinct, brown, excurved to vein 4, then incurved; cilia pure white at tips. Hind wing whitish tinged with brown, the veins and terminal area brown; a curved brown postmedial line; cilia white mixed with brown to vein 2, then white with brown striæ at base; the underside with brown discoidal spot, the postmedial line minutely dentate.

Hab. S.E. PERU, Oconeque (*Ockenden*), 2 ♂ type. *Exp.* 52 mm.

(10) *Anarmodia polystriata*, sp. n.

♂. Head and thorax grey-brown; palpi red-brown, white at base; tegulæ red-brown; pectus white; legs brownish; abdomen reddish brown, whitish at base, the ventral surface white irrorated with brown. Fore wing red-brown, the costal area grey-brown, the interspaces white, with numerous black striae except on terminal area, a wedge-shaped whitish patch on apical part of costa; traces of an oblique blackish antemedial line; obscure dark brown spots in middle of cell and on discocellulars; postmedial line blackish, oblique from costa to vein 6, slightly excurved to vein 2, then oblique; cilia black mixed with white. Hind wing white, the termen reddish brown and fuscous; a small blackish discoidal spot; a postmedial series of minute black streaks on veins 7 to 2, with series of slight fuscous spots beyond them in the interspaces between discal and submedian folds; cilia white, with series of black spots, the cilia of inner margin black-brown; the underside irrorated with brown, a black discoidal bar with some blackish above it on costa, and postmedial series of black spots.

Hab. S.E. PERU, Aqualani (*Ockenden*), 2 ♂ type. *Exp.* 50 mm.

(4 a) *Noorda albiplaga*, sp. n.

Head and thorax fuscous brown mixed with some whitish, the vertex of head and dorsum of tegulæ white; palpi white below towards base; pectus and legs white, the fore tibiæ banded with black, the mid tibiæ streaked with black above, the tarsi black ringed with white; abdomen white with dorsal brownish bands. Fore wing fuscous brown to just beyond middle, mixed with some whitish; a slight white spot at middle of costa, with faint oblique dark line from it to inner margin; the terminal area white; postmedial line black, excurved below costa and at middle and incurved at discal fold and below vein 4, a sinuous fuscous-brown maculate band beyond it from vein 7 to inner margin; a terminal fuscous-brown band; cilia white tinged with rufous and with a dark line at middle. Hind wing semihyaline white, the terminal area fuscous brown, rather broadly at costa, narrowing to a point at vein 1 and with slightly waved inner edge; cilia white, with a faint brownish line near base; the underside with the costal area faintly tinged with brown.

Hab. TRANSVAAL, White R. (*Cooke*), 1 ♂, Pretoria (*Janse*), 1 ♀ type. *Exp.* 16 mm.

(8) *Noorda ethæmata*, sp. n.

♀. Head and thorax very pale yellow; abdomen white; palpi and shoulders crimson-red at sides; pectus and legs white, the fore femora at extremity and tibiæ above red, the mid tibiæ streaked with red above. Fore wing very pale yellow, the basal half of costa crimson-red, with a few black scales below it; the terminal area crimson-red, broad at costa and narrowing to tornus, defined on inner side by a slightly sinuous black line excurved at middle. Hind wing white; the terminal area crimson-red from apex to vein 2, defined on inner side by a very minutely waved black line.

Hab. BR. E. AFRICA, Taveta (*Rogers*), 1 ♀ type. *Exp.* 18 mm.

(10) *Noorda distigmalis*, sp. n.

♀. Pale ochreous; palpi black-brown, white at base; sides of frons, a ring round neck, and stripes on shoulders black-brown; fore tibiæ with black band at extremity. Fore wing with a silvery gloss; the costal area brown suffused with silvery purple; a black point in middle of cell and another on discocellulars; the terminal area purplish brown, defined on inner side by a black line very slightly excurved between veins 7 and 2. Hind wing with terminal purple-brown band from costa to a point at vein 2, defined on inner side by a black line from vein 7 to 2.

Hab. NIGERIA, Old Calabar (*Crompton*), 1 ♀ type. *Exp.* 2½ mm.

(14) *Noorda flavidalis*, sp. n.

♂. Head and thorax orange-yellow; palpi fuscous brown, white at base; frons fuscous brown, white at sides; antennæ blackish; tibiæ and tarsi fuscous brown; abdomen fuscous brown, the three basal segments orange-yellow dorsally, the genital tufts white. Fore wing orange-yellow, the costal edge and cilia fuscous brown. Hind wing orange-yellow, the cilia brownish at base, white at tips.

Hab. PERU, Huancabamba, 1 ♂ type. *Exp.* 26 mm.

(15) *Noorda dichocrocis*, sp. n.

Head, thorax, and abdomen yellow; palpi black, the labial palpi white at base; tegulæ, shoulders, and metathorax with black spots; fore and mid femora black towards extremities, the fore tibiæ and tarsi banded with black; abdomen with

dorsal and lateral series of black spots except towards extremity. Fore wing yellow, the costal edge black; two black spots at base; three subbasal spots; four antemedial spots, the spot below the cell displaced outwards; a medial spot in cell, bar below the cell, and spot above inner margin; a discoidal bar and three spots beyond lower angle of cell; a postmedial series of nine spots, the spots below costa and above inner margin displaced outwards and the spot at discal fold inwards; a subterminal series of six small spots ending above vein 2, the spot in discal fold displaced inwards; cilia silvery at tips. Hind wing yellow; a black spot in middle of cell and bar below the cell; a discoidal spot and three spots beyond lower angle of cell; a subterminal series of five spots, the spot in discal fold displaced inwards and an oblique bar in submedian interspace; cilia silvery at tips.

Hab. GOLD COAST, Kumasi (*Whiteside*), 1 ♂ type; UGANDA, Gondokora (*Reynes-Cole*), 1 ♀. *Exp.* 24 mm.

. (4a) *Bæotarcha albotermina*, sp. n.

♀. Head and thorax reddish brown; palpi white at base; sides of frons and tips of maxillary palpi white; antennæ blackish; pectus white in front; fore tarsi ringed with white, the mid tibiæ above and the mid and hind tarsi white; abdomen white, dorsally suffused with red-brown. Fore wing opalescent white irrorated with red-brown, the base and terminal area suffused with red-brown; a strong black antemedial line and discoidal bar; postmedial line strong, black, excurved between veins 4 and 2; the termen with a series of white bars and rather lunulate black terminal line. Hind wing white, semihyaline; an oblique black bar from vein 3 to termen at vein 2 which is brownish towards extremity; a fine brown terminal line.

Hab. DUTCH N. GUINEA, Fak-fak (*Pratt*), 1 ♀ type. *Exp.* 24 mm.

(4b) *Bæotarcha hyalina*, sp. n.

♂. Head and thorax whitish suffused with fuscous brown; tarsi ringed with white; abdomen whitish with dorsal fuscous segmental lines. Fore wing semihyaline brownish white irrorated with blackish; the costal edge blackish towards base; a diffused rather inwardly oblique black antemedial line; a black discoidal lunule; postmedial line black, oblique to vein 4, slightly excurved below vein 7 and at middle and incurved below vein 4; the termen whitish, with a series of fuscous-brown spots. Hind wing hyaline white;

some black irroration along vein 2 except near the cell; an oblique black line from vein 5 to termen at submedian fold; a terminal series of blackish points.

Hab. DUTCH N. GUINEA, Mimika R. (*Wollaston*), 2 ♂ type. *Exp.* 18 mm.

(11) *Calamochrous flavimarginalis*, sp. n.

♂. Head and thorax reddish brown tinged with grey; palpi white at base; pectus and legs whitish suffused with brown; abdomen brown with slight white segmental lines, the anal tuft ochreous, the ventral surface whitish. Fore wing yellowish suffused with reddish brown and in parts with fiery red, the terminal area yellow; a faint oblique brown antemedial line; postmedial line very indistinct, brown, somewhat oblique to vein 6, then inwardly oblique, a triangular yellow patch beyond it on costal area; an oblique rather diffused brown subterminal band defining the dark area. Hind wing yellowish white; a minute brown discoidal spot, traces of a rather diffused postmedial line, a narrow brown subterminal band, and terminal series of black points.

Hab. BR. E. AFRICA, Nairobi (*Anderson*), 1 ♂ type. *Exp.* 20 mm.

(4a) *Cybolomia leucatalis*, sp. n.

♀. White. Fore wing with the costal area towards apex and the terminal area faintly tinged with brown; a few large rough rufous scales below and beyond lower angle of cell. Hind wing faintly tinged with brown towards apex.

Hab. PERSIAN GULF, Bushire (*Swinhoe*), 1 ♀ type. *Exp.* 22 mm.

(5a) *Cybolomia arenalis*, sp. n.

♀. Head and thorax white irrorated with fuscous; abdomen white tinged with fuscous. Fore wing white irrorated with black; some ochreous-brown suffusion before and beyond the antemedial line, which is black, oblique from costa to median nervure, then waved; slight black marks on costa above end of cell and on extremity of median nervure; some yellow-brown suffusion beyond end of cell before the postmedial line, which is black, excurved from below costa to vein 4, then incurved, a diffused yellow-brown line beyond it; a narrow blackish terminal band; cilia blackish with white tips and intersected by three white streaks at middle.

Hind wing white tinged with brown; a slight brown post-medial line; cilia very long, brown at base, then white, with diffused brown line near tips; the underside white irrorated with brown.

Hab. ALGERIA, Biskra (*Walsingham*), 2 ♀ type. *Exp.* 14 mm.

(7 a) *Cybolomia pulverealis*, sp. n.

♀. Head and thorax grey tinged with yellow-brown and irrorated with black; palpi at base, pectus, and legs whiter; abdomen grey-brown. Fore wing grey tinged with yellow-brown and thickly irrorated with large black scales; traces of a waved dark antemedial line; some blackish points on medial part of costa; two minute discoidal points; an indistinct, fine, dark, minutely waved postmedial line, excurved from costa to vein 5, then very oblique; traces of a curved subterminal line; a narrow brown terminal band; cilia brown. Hind wing grey-brown; traces of a curved post-medial line; cilia brown at base, whitish at tips; the underside whitish thickly irrorated with black-brown, the post-medial line more distinct.

Hab. SPAIN, Granada (*Walsingham*), 1 ♀ type. *Exp.* 14 mm.

(12) *Cybolomia apicalis*, sp. n.

♀. Head and thorax red-brown mixed with white; palpi with white line above; frons with white streaks at sides; pectus, legs, and abdomen white, the last slightly tinged with brown above. Fore wing bright rufous mixed with whitish; a slight white streak on basal half of inner margin; a white fascia on medial part of costa; a triangular white patch on apical part of costa; traces of a subterminal line excurved from costa to vein 4, then oblique, the area beyond it pinkish; traces of a line just before termen; cilia white, with faint brown line through them. Hind wing white, with traces of a faint medial line; a slight brown terminal band from apex to vein 2; the underside slightly tinged with brown; a diffused discoidal spot sometimes confluent with the medial band.

Hab. MASHONALAND, Salisbury (*Marshall*), 3 ♀ type; TRANSVAAL, White R. (*Cooke*), 1 ♀. *Exp.* 20-22 mm.

(13) **Cybolomia cataclystalis*, sp. n.

Whitish; head, thorax, and abdomen except the first segment and a band on second dorsally suffused with brown.

Fore wing with the basal area and an oblique patch from middle of costa to termen suffused with brown; a curved black line just before middle; the postmedial line obliquely curved from costa to vein 2, where it is retracted to lower angle of cell and very strongly angled outwards on vein 1; the termen silvery from vein 4 to below 2, where it runs inwards for some way; a wedge-shaped subterminal brown band from costa to the silvery mark; cilia brown. Hind wing with curved medial black line, with spots before it below cell and on vein 1: the apical area with a subterminal brown line and apical patch; a medial black patch on terminal area traversed by an obliquely sinuous orange line with ill-defined silvery ocelli beyond it.

Hab. LOUISIADES, St. Aignan (*Meek*). *Exp.* 14 mm.
Type in Coll. Rothschild.

[To be continued.]

LXIII.—*Descriptions and Records of Bees.*—LII.
By T. D. A. COCKERELL, University of Colorado.

Megachile fortis, Cresson, var. *vestali*, var. nov.

♂.—Runs exactly to *M. fortis* in Friese's table ('Das Tierreich'), and agrees with Cresson's description except as follows:—Pubescence, except on under part of cheeks, fulvous, becoming a very rich fox-red dorsally; hair of thorax above not concealing the densely granular-punctate surface; tegulae piceous, with a tuft of red hair in front; a large patch of deep red hair above each spine on anterior coxae; anterior femora broadly blackened in front and behind, but honey-coloured above and below, the entire apical part above black; keel of sixth abdominal segment very broadly truncate at apex; middle of apex (beneath the keel) merely obtusely rounded, not forming a subacute tooth.

Hab. Halsey, Nebraska, on the sand-hills, Aug. 27, 1911 (*A. G. Vestal*).

This is possibly a distinct species, but more probably a variety of *M. fortis*. It is a very handsome insect. *M. fortis* was described from Texas, but a very large collection of Texas *Megachile* now before me does not contain the species.

I formerly had quite a wrong idea of *M. fortis*, Mr. Fox having determined for me as *fortis* a red-haired variety of